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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/691,568	LEE, WOO-HYOUNG
	Examiner	Art Unit
	Greg F. Cunningham	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 July 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 13 and 14 is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 October 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

1. This action is responsive to communications of amendment received 07/03/2007.
2. The disposition of the claims is as follows: claims 1-14 are pending in the application.
Claims 1, 7 and 13 are independent claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 7 and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Ben-Aissa (US 2005/0109836 A1).

A. Ben-Aissa anticipates claim 1, "A security system using fingerprints, comprising:
a fingerprint scan part creating a fingerprint image when a finger contacts the fingerprint scan part [para. 0107 at 'FIGS. 9A-9G illustrate typical screens that may appear on the display 21 of terminal 20 during the authentication procedure, which must be satisfactorily performed prior to obtaining access of any of the other available functions on terminal 20. The initial screen in FIG. 9A instructs the employee to place a finger on the fingerprint reader 30 of terminal 20. Use of a left finger on fingerprint reader 30 is preferable since it keeps the right hand conveniently available for making entries on keyboard 25 or on touch-sensitive screen 21. Of course, if fingerprint reader 30 was disposed on the right side of terminal 20, the opposite

would be true, i.e., it would be preferable to read a right finger to keep the left hand available for keyboard or screen entries. When the employee is ready, he/she is instructed to actuate the fingerprint reader by touching the start button on the screen or by actuating the fingerprint reading key on the keyboard 25, as shown in FIG. 9B.];

a fingerprint image storing part storing representative reference fingerprint images and at least one auxiliary reference fingerprint image for registered users [para. 0036 at ‘In an initial registration process, the electronic terminal gathers biometric information, such as a fingerprint, which is then stored at the electronic terminal or in memory of the APW system for future comparison purposes.’ and furthermore in para. 0107 at ‘Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system.’ and furthermore in para. 0133 at ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.’ Wherein ‘additional images of the fingerprint be entered and captured for future comparison purposes’ corresponds to “at least one auxiliary reference fingerprint image for registered users”]; and

a control part determining whether one of the representative reference fingerprint images matches a first input fingerprint image input through the fingerprint scan part, reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image, and comparing other fingerprint images input after the first input fingerprint image with the auxiliary reference fingerprint images to determine user authentication [para. 0107 at 'Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system. The initial registration procedure, which captures images of the employee's fingerprints, is presented in greater detail below with reference to FIGS. 17A-17H. If the fingerprint reading is matched with a fingerprint on file, such as in a memory of terminal 20 or in the APW system, the next screen to appear on terminal 20 may be the screen in FIG. 9D requesting further information, such as an employee number, which may be a social security number, or requesting that the employee swipe his/her bankcard 23 in the slot of the bankcard reader 22. Note that in this example, the social security number or bankcard information is used to supplement the fingerprint identity, but some employers may be satisfied with only the use of the fingerprint verification or bankcard verification for purposes of check-in. Of course, if only bankcard verification is used for authentication on terminal 20, the employee may also be directed to enter a personal identification number associated with the bankcard number. After entering the social security number or swiping the bankcard, the employee presses the check or accept key on keypad 25 or on screen 21 to continue as shown in FIG. 9D. If only fingerprint identity is used for punching in, the authentication process may skip to the screen of FIG. 9E in which the employee is

welcomed by his/her name and provided with various options for further action such as checking in or checking out of work.’;

and furthermore in para. 0133 at ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.’ Wherein ‘additional images of the fingerprint be entered and captured for future comparison purposes’ anticipates “reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image, and comparing other fingerprint images input after the first input fingerprint image with the auxiliary reference fingerprint images to determine user authentication”]” [as detailed].

Moreover the Applicant’s specification says in the first paragraph of Summary of Invention: “performing a comparison of other predetermined or auxiliary fingerprint images.” Whereby “other predetermined” can be substituted for “auxiliary fingerprint images” and it is further left to broad interpretation as to whether “other predetermined” refers to other predetermined fingerprint images or other predetermined images. Interpretation as “other

“predetermined images” corresponds to images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa in para. 0094, 0103, 0107, 0142.

Therefore the additional images of the fingerprint being entered and captured for future comparison purposes disclosed by Ben-Aissa anticipates the use of these additional fingerprint images for comparison and identification and corresponds to the alleged deficiency given in Applicant’s remarks. Moreover the Applicant’s congruency of “auxiliary fingerprint images” with “other predetermined” renders images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa an equivalent to “auxiliary fingerprint images”. Following either interpretation Ben-Aissa is found to disclose independent claim 1.

B. Ben-Aissa anticipates claim 2, “The security system using fingerprints according to claim 1, wherein the control part displays an error message when the first input fingerprint image does not match any of the representative reference fingerprint images in the fingerprint image storing part [para. 0108 at ‘However, if terminal 20 cannot match the fingerprint from reader 30 with a corresponding image on file, the screen of FIG. 9C will appear advising of the inability to match the fingerprint. Preferably, there will be a side-by-side comparison of the closest print on file and the currently read image. Orthogonally disposed crosshairs 31 may indicate that the employee placed his/her finger too high or too low, or too far to the left or right, compared with the file image. Preferably, the origin of the crosshairs 31 will coincide near the center of the fingerprint image. Thus, the side-by-side images will assist the employee in attempting to get better centrally located placement of his/her finger on the next reading attempt.’]” supra for claim 1 and [as detailed].

C. Ben-Aissa anticipates claim 3, “The security system using fingerprints according to claim

2, further comprising a fingerprint registering part sequentially storing fingerprint images input through the fingerprint scan part by an unregistered user in the fingerprint image storing part [Para. 0059 at 'FIGS. 17A-17H illustrate typical screens that may be used on the display of the electronic terminal of FIG. 1 to add or register new employees.'; para. 0131-0132 at 'FIGS. 17A-17H illustrate the procedure for registering a new employee, including obtaining useable fingerprint images from the new employee with the fingerprint reader 30 of terminal 20 for later use in the authentication procedures of FIGS. 9A-9G, above. This entails providing about three images of a finger, such as the left index finger, to the system for subsequent comparisons during future uses of the terminal 20. In FIG. 17A, a supervisor selects the Administration function by pressing the 5 key on keypad 25. In FIG. 17B, the supervisor selects the Register Employee function by pressing the 2 key on keypad 25. In the screen of FIG. 17C, the identity of the new employee, such as an account number associated with bankcard 23, a social security number, or other employee number is entered via keypad 25. Such an employee ID number will be associated with fingerprint images by the APW system and/or terminal 20 in subsequent authentication procedures. When the employee ID number is entered and the check or accept box is actuated, the screen of FIG. 17D appears asking if the new employee is already registered on a different site or location. If so, fingerprint images already in the system may be used at the new work location. If not, the procedure continues to the screen of FIG. 17E.

In FIG. 17E, the new employee is then requested to capture a fingerprint image by placing a finger on the fingerprint reader 30, as in FIG. 9A. In the example of FIGS. 17A-17H, the new employee may a supervisor since supervisors must also register with the system in order to gain access thereto. Pressing of the fingerprint reader button captures the fingerprint image

and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures. As seen in FIG. 17F, the perfect image is one that is not too dark, nor too light, and which displays sufficient fingerprint detail. Preferably, the image of the fingerprint captures the whorl, and has differentiated ridge and valley areas with distinct lines of relatively high contrast. A poor image may be due to a dirty finger, placing the finger too high or too low on the reader 30, or using too much or too little pressure against the reader.’], and displaying the stored fingerprint images of the unregistered user for the unregistered user to select one of the stored fingerprint images as the representative reference fingerprint image [para. 0132 at ‘Pressing of the fingerprint reader button captures the fingerprint image and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures.’]

and furthermore in para. 0133 at ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint

images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.' Wherein 'a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes' anticipates "a fingerprint registering part sequentially storing fingerprint images input through the fingerprint scan part by an unregistered user in the fingerprint image storing part]" supra for claim 2 and [as detailed].

D. Ben-Aissa anticipates claim 7, "A security method using fingerprints, comprising:
storing representative reference fingerprint images and at least one auxiliary reference fingerprint image, according to registered users [para. 0107 at 'FIGS. 9A-9G illustrate typical screens that may appear on the display 21 of terminal 20 during the authentication procedure, which must be satisfactorily performed prior to obtaining access of any of the other available functions on terminal 20. The initial screen in FIG. 9A instructs the employee to place a finger on the fingerprint reader 30 of terminal 20. Use of a left finger on fingerprint reader 30 is preferable since it keeps the right hand conveniently available for making entries on keyboard 25 or on touch-sensitive screen 21. Of course, if fingerprint reader 30 was disposed on the right side of terminal 20, the opposite would be true, i.e., it would be preferable to read a right finger to keep the left hand available for keyboard or screen entries. When the employee is ready, he/she is instructed to actuate the fingerprint reader by touching the start button on the screen or by actuating the fingerprint reading key on the keyboard 25, as shown in FIG. 9B.'

and furthermore in para. 0133 at ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.’ Wherein ‘additional images of the fingerprint be entered and captured for future comparison purposes’ corresponds to “at least one auxiliary reference fingerprint image for registered users”];

receiving a first input fingerprint image for authentication of a user [para. 0107 at ‘when the employee was first registered on the APW system.’];

determining whether one of the stored representative reference fingerprint images matches the first input fingerprint image [para. 0107 at ‘Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system. The initial registration procedure, which captures images of the employee’s fingerprints, is presented in greater detail below with reference to FIGS. 17A-17H. If the fingerprint reading is matched with a fingerprint on file, such as in a memory of terminal 20 or in the APW system, the next screen to appear on terminal 20 may be the screen in FIG. 9D requesting further information, such as an employee number, which may

be a social security number, or requesting that the employee swipe his/her bankcard 23 in the slot of the bankcard reader 22. Note that in this example, the social security number or bankcard information is used to supplement the fingerprint identity, but some employers may be satisfied with only the use of the fingerprint verification or bankcard verification for purposes of check-in. Of course, if only bankcard verification is used for authentication on terminal 20, the employee may also be directed to enter a personal identification number associated with the bankcard number. After entering the social security number or swiping the bankcard, the employee presses the check or accept key on keypad 25 or on screen 21 to continue as shown in FIG. 9D. If only fingerprint identity is used for punching in, the authentication process may skip to the screen of FIG. 9E in which the employee is welcomed by his/her name and provided with various options for further action such as checking in or checking out of work.];

reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image [para. 0107 at ‘Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system. The initial registration procedure, which captures images of the employee’s fingerprints, is presented in greater detail below with reference to FIGS. 17A-17H. If the fingerprint reading is matched with a fingerprint on file, such as in a memory of terminal 20 or in the APW system, the next screen to appear on terminal 20 may be the screen in FIG. 9D requesting further information, such as an employee number, which may be a social security number, or requesting that the employee swipe his/her bankcard 23 in the slot of the bankcard reader 22. Note that in this example, the social security number or bankcard information is used to supplement the fingerprint identity, but some employers may be satisfied with only the use of

the fingerprint verification or bankcard verification for purposes of check-in. Of course, if only bankcard verification is used for authentication on terminal 20, the employee may also be directed to enter a personal identification number associated with the bankcard number. After entering the social security number or swiping the bankcard, the employee presses the check or accept key on keypad 25 or on screen 21 to continue as shown in FIG. 9D. If only fingerprint identity is used for punching in, the authentication process may skip to the screen of FIG. 9E in which the employee is welcomed by his/her name and provided with various options for further action such as checking in or checking out of work.'

and furthermore in para. 0133 at 'While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.' Wherein 'additional images of the fingerprint be entered and captured for future comparison purposes' anticipates "reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image"]; receiving additional fingerprint images sequentially input by the user [Para. 0059 at 'FIGS. 17A-17H illustrate typical screens that may be used on the display of the electronic

terminal of FIG. 1 to add or register new employees.'; para. 0131-0132 at 'FIGS. 17A-17H illustrate the procedure for registering a new employee, including obtaining useable fingerprint images from the new employee with the fingerprint reader 30 of terminal 20 for later use in the authentication procedures of FIGS. 9A-9G, above. This entails providing about three images of a finger, such as the left index finger, to the system for subsequent comparisons during future uses of the terminal 20. In FIG. 17A, a supervisor selects the Administration function by pressing the 5 key on keypad 25. In FIG. 17B, the supervisor selects the Register Employee function by pressing the 2 key on keypad 25. In the screen of FIG. 17C, the identity of the new employee, such as an account number associated with bankcard 23, a social security number, or other employee number is entered via keypad 25. Such an employee ID number will be associated with fingerprint images by the APW system and/or terminal 20 in subsequent authentication procedures. When the employee ID number is entered and the check or accept box is actuated, the screen of FIG. 17D appears asking if the new employee is already registered on a different site or location. If so, fingerprint images already in the system may be used at the new work location. If not, the procedure continues to the screen of FIG. 17E.

In FIG. 17E, the new employee is then requested to capture a fingerprint image by placing a finger on the fingerprint reader 30, as in FIG. 9A. In the example of FIGS. 17A-17H, the new employee may a supervisor since supervisors must also register with the system in order to gain access thereto. Pressing of the fingerprint reader button captures the fingerprint image and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures. As

seen in FIG. 17F, the perfect image is one that is not too dark, nor too light, and which displays sufficient fingerprint detail. Preferably, the image of the fingerprint captures the whorl, and has differentiated ridge and valley areas with distinct lines of relatively high contrast. A poor image may be due to a dirty finger, placing the finger too high or too low on the reader 30, or using too much or too little pressure against the reader.'

and furthermore in para. 0133 at 'While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.' Wherein 'additional images of the fingerprint be entered and captured for future comparison purposes' also anticipates "receiving additional fingerprint images sequentially input by the user"]; and

determining whether the user is authenticated by respectively comparing the additional input fingerprint images with the corresponding auxiliary reference fingerprint images [para. 0107 at 'The initial registration procedure, which captures images of the employee's fingerprints, is presented in greater detail below with reference to FIGS. 17A-17H. If the fingerprint reading is matched with a fingerprint on file, such as in a memory of terminal 20 or in the APW system,

the next screen to appear on terminal 20 may be the screen in FIG. 9D requesting further information, such as an employee number, which may be a social security number, or requesting that the employee swipe his/her bankcard 23 in the slot of the bankcard reader 22. Note that in this example, the social security number or bankcard information is used to supplement the fingerprint identity, but some employers may be satisfied with only the use of the fingerprint verification or bankcard verification for purposes of check-in. Of course, if only bankcard verification is used for authentication on terminal 20, the employee may also be directed to enter a personal identification number associated with the bankcard number. After entering the social security number or swiping the bankcard, the employee presses the check or accept key on keypad 25 or on screen 21 to continue as shown in FIG. 9D. If only fingerprint identity is used for punching in, the authentication process may skip to the screen of FIG. 9E in which the employee is welcomed by his/her name and provided with various options for further action such as checking in or checking out of work.'

and furthermore in para. 0133 at 'While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main

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supervisory page.’ Wherein ‘If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes’ also anticipates “determining whether the user is authenticated by respectively comparing the additional input fingerprint images with the corresponding auxiliary reference fingerprint images”]” [as detailed].

Moreover the Applicant’s specification says in the first paragraph of Summary of Invention: “performing a comparison of other predetermined or auxiliary fingerprint images.” Whereby “other predetermined” can be substituted for “auxiliary fingerprint images” and it is further left to broad interpretation as to whether “other predetermined” refers to other predetermined fingerprint images or other predetermined images. Interpretation as “other predetermined images” corresponds to images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa in para. 0094, 0103, 0107, 0142.

Therefore the additional images of the fingerprint being entered and captured for future comparison purposes disclosed by Ben-Aissa anticipates the use of these additional fingerprint images for comparison and identification and corresponds to the alleged deficiency given in Applicant’s remarks. Moreover the Applicant’s congruency of “auxiliary fingerprint images” with “other predetermined” renders images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa an equivalent to “auxiliary fingerprint images”. Following either interpretation Ben-Aissa is found to disclose independent claim 7.

E. Ben-Aissa anticipates claim 8, “The security method using fingerprints according to claim 7, further comprising displaying an error message when the first input fingerprint image

does not match any of the representative reference fingerprint images [para. 0108 at ‘However, if terminal 20 cannot match the fingerprint from reader 30 with a corresponding image on file, the screen of FIG. 9C will appear advising of the inability to match the fingerprint. Preferably, there will be a side-by-side comparison of the closest print on file and the currently read image.

Orthogonally disposed crosshairs 31 may indicate that the employee placed his/her finger too high or too low, or too far to the left or right, compared with the file image. Preferably, the origin of the crosshairs 31 will coincide near the center of the fingerprint image. Thus, the side-by-side images will assist the employee in attempting to get better centrally located placement of his/her finger on the next reading attempt.’]” supra for claim 7 and [as detailed].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-6, 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ben-Aissa as applied to claim 3 above, and further in view of Bergstrom (US 2002/0122026 A1).

A. Ben-Aissa discloses claim 4, “The security system using fingerprints according to claim 3, wherein the fingerprint registering part assigns sequential order values to the unregistered fingerprint images input through the fingerprint scan part and stores the sequential order values with the input fingerprint images of the unregistered user in the fingerprint image storing part” supra for claim 3. However Ben-Aissa does not appear to disclose “wherein the fingerprint

registering part assigns sequential order values to the unregistered fingerprint images input through the fingerprint scan part and stores the sequential order values with the input fingerprint images of the unregistered user in the fingerprint image storing part"; but Bergstrom does in [para. 0026 at 'The fingerprint interpreter 415 generates a sequence of characteristic data ("fingerprint map") that represents the sensed fingerprint image. The identity verification system 435 in the computer 405 reads the fingerprint map and determines whether the fingerprint map matches a stored reference fingerprint image. The two-dimensional position interpreter 420 generates an x-y coordinate position of the center of the fingerprint map on the contact surface 22. In one preferred embodiment, the coordinate position is determined by computing the arithmetic center of mass for the fingerprint map. The mouse driver program 440 reads the x-y coordinate position and uses the information to control the position of a visual cue on a display screen. The embodiment shown in FIG. 4 is meant to be exemplary and variations thereof would be apparent to one skilled in the art.', where 'a sequence of characteristic ("fingerprint map")' corresponds to "assigns sequential order values to the unregistered fingerprint images input".]

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic ("fingerprint map") disclosed by Bergstrom, and motivated to combine the teachings because it would "performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes" as revealed by Bergstrom in para. 0010.

B. Ben-Aissa discloses claim 5, "The security system using fingerprints according to claim 3, wherein the fingerprint scan part comprises multiple fingerprint input keys having order values

sequentially selected by the unregistered user; and the fingerprint registering part stores a combination of input fingerprint images contacting the fingerprint input keys selected by the unregistered user and the order values in the fingerprint image storing part” supra for claim 3.

However Ben-Aissa does not appear to disclose “wherein the fingerprint scan part comprises multiple fingerprint input keys having order values sequentially selected by the unregistered user [Bergstrom - para. 0026 at ‘The information furnished by the fingerprint scanner 410 consists of a high resolution bit map of the surface of the fingerprint touch pad 400. The fingerprint interpreter 415 generates a sequence of characteristic data (“fingerprint map”) that represents the sensed fingerprint image.’]; and the fingerprint registering part stores a combination of input fingerprint images contacting the fingerprint input keys selected by the unregistered user and the order values in the fingerprint image storing part [Bergstrom - para. 0023 at ‘In one preferred embodiment, the fingerprint image is stored in a memory 315.’ and para. 0025 at ‘In an alternate embodiment of the invention, the primary purpose of the security system might not be to limit or prevent access to all or part of a system, but rather to record who has had access to the system. In this embodiment, after the fingerprint has been identified 310, as shown in FIG. 3, the identification is stored in memory 315.’]”, but Bergstrom does [Bergstrom - as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic (“fingerprint map”) and fingerprint touchpad disclosed by Bergstrom, and motivated to combine the teachings because it would “performs both fingerprint sensing and

matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes” as revealed by Bergstrom in para. 0010.

C. Ben-Aissa and Bergstrom disclose claim 6, “The security system using fingerprints according to claim 4, wherein the fingerprint registering part displays a screen to set the input order of the auxiliary reference fingerprint images [Bergstrom – para. 0018 at ‘In one preferred embodiment, the contact surface includes sensors of a type capable of sensing both a coordinate position and a fingerprint image. A processor receives the sensed coordinate position information 24 and causes the cursor 28 to appear in a correlated position on the display 30 of a computer. The processor receives the sensed fingerprint image 26 and compares it to stored reference fingerprint images. If the sensed image matches a stored reference image, access to the computer is allowed.’, wherein ‘coordinate position information 24 and causes the cursor 28 to appear in a correlated position on the display 30’ corresponds to “displays a screen to set the input order of the auxiliary reference fingerprint images”]; and the control part stores the input order of the auxiliary reference fingerprint images in the fingerprint image storing part. [Bergstrom – para. 0023 at ‘In one preferred embodiment, the fingerprint image is stored in a memory 315.’]” supra for claim 4 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic (“fingerprint map”) and coordinate and correlated position disclosed by Bergstrom, and motivated to combine the teachings because it would “performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes” as revealed by Bergstrom in para. 0010.

D. Ben-Aissa and Bergstrom disclose claim 9, "The security method using fingerprints according to claim 8, further comprising:

receiving fingerprint images of an unregistered user [Ben-Aissa - Para. 0059 at 'FIGS.

17A-17H illustrate typical screens that may be used on the display of the electronic terminal of FIG. 1 to add or register new employees.'; para. 0131-0132 at 'FIGS. 17A-17H illustrate the procedure for registering a new employee, including obtaining useable fingerprint images from the new employee with the fingerprint reader 30 of terminal 20 for later use in the authentication procedures of FIGS. 9A-9G, above. This entails providing about three images of a finger, such as the left index finger, to the system for subsequent comparisons during future uses of the terminal 20. In FIG. 17A, a supervisor selects the Administration function by pressing the 5 key on keypad 25. In FIG. 17B, the supervisor selects the Register Employee function by pressing the 2 key on keypad 25. In the screen of FIG. 17C, the identity of the new employee, such as an account number associated with bankcard 23, a social security number, or other employee number is entered via keypad 25. Such an employee ID number will be associated with fingerprint images by the APW system and/or terminal 20 in subsequent authentication procedures. When the employee ID number is entered and the check or accept box is actuated, the screen of FIG. 17D appears asking if the new employee is already registered on a different site or location. If so, fingerprint images already in the system may be used at the new work location. If not, the procedure continues to the screen of FIG. 17E.

In FIG. 17E, the new employee is then requested to capture a fingerprint image by placing a finger on the fingerprint reader 30, as in FIG. 9A. In the example of FIGS. 17A-17H, the new employee may a supervisor since supervisors must also register with the system in order to gain

access thereto. Pressing of the fingerprint reader button captures the fingerprint image and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures. As seen in FIG. 17F, the perfect image is one that is not too dark, nor too light, and which displays sufficient fingerprint detail. Preferably, the image of the fingerprint captures the whorl, and has differentiated ridge and valley areas with distinct lines of relatively high contrast. A poor image may be due to a dirty finger, placing the finger too high or too low on the reader 30, or using too much or too little pressure against the reader. '] and

assigning order values to the fingerprint images sequentially input by the unregistered user, and storing the order values with the input fingerprint images [Bergstrom - para. 0026 at 'The fingerprint interpreter 415 generates a sequence of characteristic data ("fingerprint map") that represents the sensed fingerprint image. The identity verification system 435 in the computer 405 reads the fingerprint map and determines whether the fingerprint map matches a stored reference fingerprint image. The two-dimensional position interpreter 420 generates an x-y coordinate position of the center of the fingerprint map on the contact surface 22. In one preferred embodiment, the coordinate position is determined by computing the arithmetic center of mass for the fingerprint map. The mouse driver program 440 reads the x-y coordinate position and uses the information to control the position of a visual cue on a display screen. The embodiment shown in FIG. 4 is meant to be exemplary and variations thereof would be apparent to one skilled in the art.', where 'a sequence of characteristic ("fingerprint map")' corresponds to

“assigns sequential order values to the unregistered fingerprint images input”.]” supra for claim 8 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic (“fingerprint map”) disclosed by Bergstrom, and motivated to combine the teachings because it would “performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes” as revealed by Bergstrom in para. 0010.

E. Ben-Aissa and Bergstrom disclose claim 10, “The security method using fingerprints according to claim 9, further comprising displaying a screen for the unregistered user to select one of the stored representative reference fingerprint images as the representative reference fingerprint image [Ben-Aissa - para. 0132 at ‘Pressing of the fingerprint reader button captures the fingerprint image and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures.’]” supra for claim 9 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic (“fingerprint map”) disclosed by Bergstrom, and motivated to combine the teachings because it would “performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes” as revealed by Bergstrom in para. 0010.

F. Ben-Aissa and Bergstrom disclose claim 11, "The security method using fingerprints according to claim 10, further comprising:

displaying a screen to select and assign order values to the auxiliary reference fingerprint images [Bergstrom - Bergstrom – para. 0018 at 'In one preferred embodiment, the contact surface includes sensors of a type capable of sensing both a coordinate position and a fingerprint image. A processor receives the sensed coordinate position information 24 and causes the cursor 28 to appear in a correlated position on the display 30 of a computer. The processor receives the sensed fingerprint image 26 and compares it to stored reference fingerprint images. If the sensed image matches a stored reference image, access to the computer is allowed.', wherein 'coordinate position information 24 and causes the cursor 28 to appear in a correlated position on the display 30' corresponds to "displays a screen to set the input order of the auxiliary reference fingerprint images"]; and

storing the selected auxiliary reference fingerprint image and the order values with the selected representative reference fingerprint image [Bergstrom – para. 0023 at 'In one preferred embodiment, the fingerprint image is stored in a memory 315.']" supra for claim 10 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic ("fingerprint map") and coordinate and correlated position disclosed by Bergstrom, and motivated to combine the teachings because it would "performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes" as revealed by Bergstrom in para. 0010.

G. Ben-Aissa and Bergstrom disclose claim 12, "The security method using fingerprints according to claim 8, further comprising:

selecting sequentially two or more fingerprint input keys having order values selected by the unregistered user [Ben-Aissa - Para. 0059 at 'FIGS. 17A-17H illustrate typical screens that may be used on the display of the electronic terminal of FIG. 1 to add or register new employees.']; para. 0131-0132 at 'FIGS. 17A-17H illustrate the procedure for registering a new employee, including obtaining useable fingerprint images from the new employee with the fingerprint reader 30 of terminal 20 for later use in the authentication procedures of FIGS. 9A-9G, above. This entails providing about three images of a finger, such as the left index finger, to the system for subsequent comparisons during future uses of the terminal 20. In FIG. 17A, a supervisor selects the Administration function by pressing the 5 key on keypad 25. In FIG. 17B, the supervisor selects the Register Employee function by pressing the 2 key on keypad 25. In the screen of FIG. 17C, the identity of the new employee, such as an account number associated with bankcard 23, a social security number, or other employee number is entered via keypad 25. Such an employee ID number will be associated with fingerprint images by the APW system and/or terminal 20 in subsequent authentication procedures. When the employee ID number is entered and the check or accept box is actuated, the screen of FIG. 17D appears asking if the new employee is already registered on a different site or location. If so, fingerprint images already in the system may be used at the new work location. If not, the procedure continues to the screen of FIG. 17E.

In FIG. 17E, the new employee is then requested to capture a fingerprint image by placing a finger on the fingerprint reader 30, as in FIG. 9A. In the example of FIGS. 17A-17H,

the new employee may a supervisor since supervisors must also register with the system in order to gain access thereto. Pressing of the fingerprint reader button captures the fingerprint image and displays it on the screen shown in FIG. 17F. The captured image is compared to acceptable and unacceptable images and the employee is prompted to decide whether to accept the captured image as a reference image for future comparison efforts during authentication procedures. As seen in FIG. 17F, the perfect image is one that is not too dark, nor too light, and which displays sufficient fingerprint detail. Preferably, the image of the fingerprint captures the whorl, and has differentiated ridge and valley areas with distinct lines of relatively high contrast. A poor image may be due to a dirty finger, placing the finger too high or too low on the reader 30, or using too much or too little pressure against the reader.’];

storing a combination of fingerprint images input through the selected fingerprint input keys and the order values [Ben-Aissa - para. 0036 at ‘In an initial registration process, the electronic terminal gathers biometric information, such as a fingerprint, which is then stored at the electronic terminal or in memory of the APW system for future comparison purposes.’ and at ‘Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system.’]; and determining authentication of a user requesting authentication by determining whether an order of the fingerprint images input through the fingerprint input keys matches the selected order values and whether the input fingerprint images match the stored auxiliary reference fingerprint images [Ben-Aissa - para. 0107 at ‘Terminal 20 then compares the fingerprint from fingerprint reader 30 with fingerprints scans that were made when the employee was first registered on the APW system. The initial registration procedure, which captures images of the employee’s

fingerprints, is presented in greater detail below with reference to FIGS. 17A-17H. If the fingerprint reading is matched with a fingerprint on file, such as in a memory of terminal 20 or in the APW system, the next screen to appear on terminal 20 may be the screen in FIG. 9D requesting further information, such as an employee number, which may be a social security number, or requesting that the employee swipe his/her bankcard 23 in the slot of the bankcard reader 22. Note that in this example, the social security number or bankcard information is used to supplement the fingerprint identity, but some employers may be satisfied with only the use of the fingerprint verification or bankcard verification for purposes of check-in. Of course, if only bankcard verification is used for authentication on terminal 20, the employee may also be directed to enter a personal identification number associated with the bankcard number. After entering the social security number or swiping the bankcard, the employee presses the check or accept key on keypad 25 or on screen 21 to continue as shown in FIG. 9D. If only fingerprint identity is used for punching in, the authentication process may skip to the screen of FIG. 9E in which the employee is welcomed by his/her name and provided with various options for further action such as checking in or checking out of work.]” supra for claim 8 and [as detailed].

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply fingerprint scanner reader disclosed by Ben-Aissa in combination with characteristic (“fingerprint map”) and coordinate and correlated position disclosed by Bergstrom, and motivated to combine the teachings because it would “performs both fingerprint sensing and matching for identification purposes, and controls the position of a cursor on a display screen for data input purposes” as revealed by Bergstrom in para. 0010.

Allowable Subject Matter

7. Claims 13 and 14 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The closest prior Ben-Aissa (US 2005/0109836 A1) and Bergstrom (US 2002/0122026

A1) disclose ‘access to the system is permitted after authentication by a biometric device, such as a fingerprint reader, or by a bankcard and a personal identification number (PIN). In an initial registration process, the electronic terminal gathers biometric information, such as a fingerprint, which is then stored at the electronic terminal or in memory of the APW system for future comparison purposes. Each bankcard is related to a separate bank account and the employer deposits each employee's net pay in the respective bank accounts associated with each bankcard. The employee can then use the bankcard to withdraw cash from any supported ATM station or to pay for transactions at any point of sale (POS) device’ and ‘a system for sensing the coordinate position and an identification of a finger. The sensed position and sensed identification information are substantially simultaneously and continually analyzed. The coordinate position information is used to control a visual cue on a display. The identification information is used to limit access to a computer system’ respectively. However they do not disclose the combined elements of “receiving and storing fingerprint images for each finger of one or more unregistered users; displaying the stored fingerprint images for the unregistered user to select one of the stored fingerprint images as a representative reference fingerprint image; displaying the stored fingerprint images for the unregistered user to select and order one or more of the stored fingerprint images as ordered auxiliary reference fingerprint images; registering the user with the corresponding representative reference fingerprint image and the auxiliary reference fingerprint

images; receiving a first fingerprint image from a user to be authenticated; determining whether the first fingerprint image matches any of a plurality of stored representative reference fingerprint images for a plurality of registered users; receiving, when the first fingerprint image matches one of the stored representative reference fingerprint images, additional fingerprint images sequentially input by the user to be authenticated; and determining whether each of the additional fingerprint images matches auxiliary reference fingerprint images corresponding to the representative reference fingerprint image that matches the first fingerprint image, and whether the additional fingerprint images are input according to the selected order of the corresponding auxiliary reference fingerprint images” as claimed in independent claim 13.

Claim 14 depends from allowable independent claim 13 and therefore is also allowed.

Response to Arguments

8. Applicant's arguments filed 7/3/2007 have been fully considered but they are not persuasive.

Ben-Aissa discloses in para. 0133 at ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint

images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page.’ Wherein ‘additional images of the fingerprint be entered and captured for future comparison purposes’ anticipates “reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image, and comparing other fingerprint images input after the first input fingerprint image with the auxiliary reference fingerprint images to determine user authentication”]” [as detailed].

Moreover the Applicant’s specification says in the first paragraph of Summary of Invention: “performing a comparison of other predetermined or auxiliary fingerprint images.” Whereby “other predetermined” can be substituted for “auxiliary fingerprint images” and it is further left to broad interpretation as to whether “other predetermined” refers to other predetermined fingerprint images or other predetermined images. Interpretation as “other predetermined images” corresponds to images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa in para. 0094, 0103, 0107, 0142.

Therefore the additional images of the fingerprint being entered and captured for future comparison purposes disclosed by Ben-Aissa anticipates the use of these additional fingerprint images for comparison and identification and corresponds to the alleged deficiency given in Applicant’s remarks. Moreover the Applicant’s congruency of “auxiliary fingerprint images” with “other predetermined” renders images of PIN numbers, APW card, and/or imprinted credit card or bankcard numbers as disclosed by Ben-Aissa an equivalent to “auxiliary fingerprint images”. Following either interpretation Ben-Aissa is found to disclose independent claim 1.

While Ben-Aissa may not discuss the claim 1 language of “reading auxiliary reference fingerprint images corresponding to a matching representative reference fingerprint image, and

comparing other fingerprint images input after the first input fingerprint image with the auxiliary reference fingerprint images to determine user authentication”, his disclosure of ‘While reference is frequently made to the employee in these registration steps, it will be understood that a supervisor is typically assisting the new employee and that the supervisor may be deciding whether a captured image is suitable for saving for future reference purposes. If the first captured image is accepted by pressing the accept button on the screen or the accept key on keypad 25, terminal 20 may then request that additional images of the fingerprint be entered and captured for future comparison purposes. When the appropriate number of images has been captured, the employee is instructed to remove his/her finger from the fingerprint reader 30 in FIG. 17G. Preferably, about three fingerprint images may be captured for this purpose. In FIG. 17H, the terminal then reverts to the main supervisory page’ not only makes said claim 1 language obvious but also actually anticipates said claim 1 language.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Responses

10. Responses to this action should be mailed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231.

Inquiries

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory F. Cunningham whose telephone number is (571) 272-7784.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on (571) 272-7778. The Central FAX Number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

G.F. Cunningham

Matt C. Bella

Gregory F. Cunningham
Examiner, Art Unit 2624

gfc, 8/14/2007

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SUPERVISORY PATENT EXAMINER
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